City of Broken Arrow – Annual Drinking Water Quality Report – 2005

We're pleased to report that our drinking water is safe and meets Federal and State drinking water requirements. This report is designed to inform you about the quality of the water and services we deliver to you each day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We are committed to insuring the quality of your water. Our primary water source is the Oklahoma Ordinance Works Authority Water Treatment Plant at Pryor. This plant draws its raw water from the Grand River below Lake Hudson. Our secondary water source is our own water treatment plant, which treats water from the Verdigris River east of Broken Arrow. Both plants are surface water systems.

The Broken Arrow Municipal Authority is responsible for operating the City's water utility. The Utilities Department is charged with the daily operation of the water utility. If you have any questions about this report or concerning your water utility, please contact Paul Rhodes, Utilities Director at (918) 259-8373. We want our valued customers to be informed about their water utility. If you want to learn more about the Broken Arrow Municipal Authority or the water utility, you may attend any of our regularly scheduled meetings. They are held on the first and third Mondays of each month in the City Council chambers at City Hall, 200 S. 1st Street, immediately after the City Council meeting that starts at 6:30 p.m.

The City of Broken Arrow routinely monitors for constituents in your drinking water according to Federal and State laws. The following table shows the results of our monitoring for the period of January 1st to December 31st, 2005. In the table, you will see references to the Maximum Contaminant Level (MCL). Federal law establishes very stringent MCL's for contaminants in drinking water. To understand the possible health effect described for any regulated constituents, a person would have to drink 2 liters (over ½ gallon) of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. The table shows that our system had no violations this year.

Drinking water, including bottled water, may reasonable be expected to contain at least small amounts of some contaminants. The presence of contaminants doe not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800)426-4791.

Contaminants that may be present in source water before treatment includes:

- *Microbial contaminants,* such as viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- *Inorganic contaminants,* such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- *Pesticides and herbicides,* which may come from a variety of sources such as agriculture and residential uses.
- *Radioactive contaminants,* which are naturally occurring.
- *Organic chemical contaminants,* including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and could also come from gas stations, urban storm water runoff and septic systems.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

You may have noticed a smell to the water that is caused by using Chlorine Dioxide as a pretreatment disinfectant. This is being used to lower the level of THM's created during the treatment process. When the water is turned on the Chlorine Dioxide, being very volatile, is released into the atmosphere and may combine with other molecules in the air causing some chemical like smells. The water is safe and the Chlorine Dioxide isn't harmful in the levels used to treat the water. Airing out the house can improve this condition.

Definitions

In the table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Parts per million (ppm) = Milligrams per liter (mg/l)
Parts per billion (ppb) = Micrograms per liter (ug/l)
Nephelometric Turbidity Unit (NTU) – is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
Action Level (AL) – the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Treatment Technique (TT) – A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
Maximum Contaminant Level (MCL) – The MCL is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
Maximum Contaminant Level Goal (MCLG) – This is the level of a contaminant in drinking water below which there is no known or expected risk to the health.

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TEST RESULTS
Combined Data Representing Purchase and Surface Water Results

Contaminant	Violation Y/N	Level Detected	Range Detected	MCL	MCLG	Likely Source of Contamination
Microbiological Contaminants						
1. Total Coliform Bacteria (System takes ≥40 monthly samples)	No	1		5% positive	0	Naturally present in the environment
3. Turbidity (NTU) (maximum monthly level)	No	.07	N/a	TT≤0.5 NTU in 95% of monthly samples	n/a	Soil runoff
Inorganic Contaminants						
14. Copper (ppm) 90% value for yearly testing	No	.33	<0.005–0.45	AL=1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
5. Alpha emitters (pCi/1)	No	.563	.27-.76	15	0	Erosion of natural deposits
10. Barium (ppm)	No	.051	N/a	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
16. Fluoride (ppm)	No	0.91	.78-1.02	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
19. Nitrate/Nitrite (ppm) (as Nitrogen)	No	.806	N/a	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Volatile Organic Contaminants						
73. TTHM [Total trihalomethanes] (ppb)	No	37	9.55-64.6	80	0	By-product of drinking water chlorination
74. HAA5 [Haloaacetic Acid] (ppb)	No	34	18.85-53.96	60	0	By-product of drinking water disinfection

Explanation of Contaminants

(1) Total Coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially- harmful, bacteria that may be present. Coliforms were found in more samples than allowed is a warning of potential problems.

3) Turbidity. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

(5) Alpha emitters. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

(10) Barium. Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

(14) Copper. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

(16) Fluoride. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.

(19) Nitrate. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(73) TTHMs [Total Trihalomethanes]. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

(74) HAA5 [Haloaacetic Acids] Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk o getting cancer.

Summary

The Broken Arrow Municipal Authority has replaced the trunk water line into town and increased the size to improve the quality and quantity of water that can be provided. The cost of these improvements is reflected in the rate structure for water usage. The long range water study committee composed of concerned citizens and city staff has made a recommendation to the city council and we are moving forward with plans to improve the ability to deliver water to Broken Arrow. During this process the quality of our water will always be a primary factor in any design criteria. If you have any questions about your, you water quality may contact Paul Rhodes, Utilities Director at 259-8373.